STARUKHIN, N.M., inzh.; BOGATYKH, Ya.D., inzh.; TRUBIN, V.A., glav. red.; SOSHIN, A.V., zam. glav. red.; GRINEVICH, G.P., red.p YEPIFANOV, S.P., red.; ONUFRIYEV, I.A., red.; KHOKHLOV, B.A., red.; ZIMIN, P.A., red.; TSYURUPA, A.L., inzh., nauchnyy red.; GORDEYEV, P.A., red. izd-va; SHERSTNEVA N.V., tekhn. red.

[Handbook on masonry operations] Spravochnik po kamennym rabotam. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 198 p. (MIRA 14:10)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu. (Masonry)

DUBRAVIN, G.B., red.; PANOV, K.S., red.; STARUKHIN, N.M., red.; PETROVA, V.V., red.izd-va; NAUMOVA, G.D., tekhn.red.

[Construction specifications and regulations] Stroitel'nye normy i pravila. Moskva, Gosstroiizdat. Pt.3. Sec.K. ch.1.[Apartment and public complexes, buildings, and structures; regulations for construction organization and acceptance] Zhilye i obshchestvennye kompleksy, zdaniia i sooruzheniia; pravila organizatsii stroitel'stva i priemki v ekspluatatsiiu (SNiP III-K. 1-62). 1963. 11 p. (MIRA 17:1)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosstroy SSSR (for Dubravin). 3. Mezhvedomstvennaya komissiya po peresmotru Stroitel'nykh norm i pravil (for Panov). 4. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu Akademii stroitel'stva i arkhitektury SSSR (for Starukhin).

DOLOTOV, N.P.; STARUKHINA, A.D.

Causes of accidents and traumatism at chemical industry enterprises. Bezop. truda v prom. 8 no.9:22-24 S '64
(MIRA 18:1)

1. Upravleniye Tul'skogo okruga Gosudarstvennogo komiteta pri Sovete Ministrov RSFSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru.

AYZENSHTAYN, P.G.; STARUKHINA, K.A.

Production of MB-70 and MB-90 cable-joint fillers from Romashkino petroleum. Nefteper. i neftekhim. no.2:14-16 '63. (MIRA 17:1)

1. Gor'kovskiy neftemaslozavod.

STARUN, V. R.

PA 187T20

USSR/Engineering - Refractories, Equipment Jul 51

"Rationalization of the Floor of Periodic Kilns," V. R. Starun, K. K. Postolitsa, Engineers, "Krasnaya Zvezda" (Red Star) Plant

"Ogneupory," No 7, pp 302-305

Investigated 5 periodic kilns for improvement in turnover time and fuel economy. Evolved following measures: increase in hydraulic resistance of floor grate by decreasing area of openings to 6-7.5% of floor area in kilns of up to 100 cu m; rational distribution of floor openings in respect to direction of main flue; increase in firebox vol to 10-11% of useful vol of kiln.

LC

187T20

Starun, V.R.

1521. RAPID FIRING IN RING KILN. Starun, V.R. and Postolitas, K.K. (Ogneupory (Fireproof Mat., Moscow), 1952, vol. 17, 476). Improvements in ring kilns fired with producer gas, and methods of intensifying the firing of refractories, are discussed on the basis of experience in a Russian plant. B.Cerm.R.A.

STARUN,V.R.; MAYKHROVSKIY,Yu.V.; POLONSKAYA,N.M.

The manufacture of stoppers, "nest" shape bricks and funnels by the method of semi-dry pressing. Ogneupory 20 no.3:99-108 '55. (MLRA 8:8)

1. Zaporozhskiy ogneupornyy zavod.
(Refractory materials)

STARUN, V.R.

Met

1730. Dressing of Kimpersaiskii chrome ores by electromagnetic separation.—V R 4E2c
STARUN, V. F. IGNATOV, and M. I. KOLESNIK (*Ogneupory*, 22, 97, 1957). In Russian.
The ores, which consist of chrome spinel and gangue, occur as (1) highly impure, (2) slightly impure and (3) compact deposits. They were crushed and graded from 0·5 to 4 mm. Two materials, a mixture of (1) and (2) and the normal run-of-mine ore, were separated in a high-intensity electromagnetic separator. The mixed ores yielded 80–89% of concentrate (44·5–49% Cr_2O_3). With normal run-of-mine ore the Cr_2O_3 content of the concentrate rose by 7 to 10%; the yield of concentrate was 77·8–79·1% (50·75–54·8% Cr_2O_3). >3-mm cannot be separated by the present apparatus. (7 figs., 3 tables.)

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amg

STARUN, V.R.; IGNATOV, V.F.; KOLESNIK, M.I.

Beneficiating Batamshinskiy deposit chromite ores by electromagnetic separation. Ogneupory 22 no.3:97-100 '57. (MLRA 10:5)

1. Zaporozhskiy ogneupornyy zavod.
(Magnetic separation of ores) (Batamshinskiy--Chromite)

Starun, V. R.

AUTHORS: Starun, V. R., Postolitsa, K. K. 131-2-2/10

TITLE: Conversion of Ring and Periodic Furnaces to Gas Fuel (Perevod kol'tsevykh i periodicheskikh pechey na gazovoye toplivo)

PERIODICAL: Ogneupory, 1958, Nr 2, pp. 54-56 (USSR)

ABSTRACT: Until 1956, the baking process in the chamotte department of the Zaporozh'ye Plant represented a bottleneck which was removed by the adaption of the furnaces to gas heating, as well as by a transformation of the periodic furnaces into ring furnaces. This transformation was effected, without a stoppage of the furnace, by conducting a number of works in advance, as there are the introduction of the main ducts for gas, the working of holes into the furnace foundations and so on. Technical data on the furnaces may be taken from the table. The vaults of the ring-furnaces are constructed of light Dinas instead of chamotte (see figure 1). The outlay of the gas pipes is represented in figure 2. An operation of the ring-furnaces with a mixture of coke- and furnace gas with a constant content of calories ensures a stable baking process, at the same time reducing the specific fuel

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consumption. The products show uniform baking and stable physical and chemical properties, which were achieved by an economical two-side gas supply (figure 3). By this adaption the output of the furnaces was increased, the furnace temperatures were equalized, the output of defective products was decreased, and the operation conditions for the operational staff were improved.
There are 3 figures, and 1 table.

ASSOCIATION: Zaporozh'ye Plant of Refractory Products (Zaporozhskiy ogneupornyy zavod).

AVAILABLE: Library of Congress

131-58-6-2/14

AUTHORS: Starun, V. R., Kolesnik, M. I., Sokolov, I. N., Trofimov, M. G., Dudavskiy, I. Ye.

TITLE: The Pressing of Magnesite-Chromite Products on Hydraulic Presses at High Specific Pressures (Pressovaniye magnezitokhromitovykh izdeliy na gidravlicheskikh pressakh pri vysokikh udel'nykh davleniyakh)

PERIODICAL: Ogneupory, 1958, Nr 6, pp. 244 - 250 (USSR)

ABSTRACT: 1) Adoption of high pressures in the manufacturing of vault products. The department for chromium-magnesite products at the Zaporozh'ye works is equipped with hydraulic UZTM presses of a pressing pressure of 1000 t (figure 1). On these presses magnesite-chromite products of a length of 527 mm and a width of 155,5 mm can be pressed at a specific pressure of 1160 kg/cm^2. In the case of smaller measurements of the bricks this pressure can be raised to from 1300 - 2600 kg /cm^2, however, with a number of difficulties arising, the principal being those of the separating into layers of the unfinished pieces under formation

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of cracks. This separating into layers occurred, as was found in practice, by a bending through of the molds at the pressing pressure of 1000 kg/cm^2. After the molds had been reinforced (figure 2) it was possible to overcome these difficulties. The experiments were carried out with a mass of 30% chromite and 70% magnesite powder, their granulation and content of humidity being mentioned in table 1. After all presses had been furnished with reinforced molds it was possible to work with high pressing pressure. In table 2 the weight by volume of the unfinished pieces of vault products for the last three months of 1957 was mentioned. The vault products of the Zaporozh'ye works have a smaller porosity than of other works and their strength increased by 20-40%, although the difficultly sintering chromite of the Kimpersaysk deposit was used.

2) Adoption of high pressing pressures in the production of products for converters with oxygen blowing, as well as of Martin furnace caissons. In the pressing of masses with a content of 60% fraction of less than 0,5 mm and among it a 40% fraction of less than 0,088 mm again separations of layers occurred which

are, however, explained only by the elastic properties of the mass itself. Investigations showed that the regime of the rise in pressing pressure as well as of the maintainance of the pressure play decisive part in this. The pressing regime is mentioned in a table. In table 3 the weight by volume of these products is mentioned for the last 3 months of 1957. When finely grained masses were used a slowed down pressing regime had to be fixed as can be seen from the table. The essential properties of the caisson and converter products are given in table 4.

3) The influence of the content of humidity of the initial powders and masses and the quality of their working. Practice showed that the use of powders with a humidity content of more than 1,5% abruptly decreases the pressability of the masses and brings about an increase of the waste by separation of the layers. It turned out that the grains, moistened by water, adsorb the binder less than do the dry ones; therefore the consecutive order of the addition of water and binder must be regulate correspondingly. The masses must also be better worked through,

which is secured by using the centrifugal edge mill "model 115". The use of high pressing pressures makes it possible to increase the density of the vault products as well as their strength in operation. There are 2 figures and 6 tables.

ASSOCIATION: Zaporozhskiy ogneuporny zavod (Zaporozh'ye Works of Refractories)

1. Chromium-magnesium alloys--Processing 2. Hydraulic presses--Performance

131-58-6-4/14

AUTHORS: Starun, V. R., Kolesnik, M. I.

TITLE: The Performance of Magnesite-Chromite Products in the Crown of a Tunnel Kiln for High Temperatures (Sluzhba magnesitokhromitovykh izdeliy v svode vysokotemperaturnoy tunnel'noy pechi)

PERIODICAL: Ogneupory, 1958, Nr 6, pp. 257-260 (USSR)

ABSTRACT: In the works department for chromium-magnesite bricks of the Zaporozh'ye works tunnel kilns for high temperatures were constructed based on the design by the Leningrad Institute for Refractory Products. The scaffolds in the preheating and cooling zones were made of chamotte products, and in the burning zone of refractory materials of high clay content with a content of from 72 - 80 % and 60 % Al_2O_3. Based on the 2-years experience with these kilns it was found that the wear of the crowns by shearing of the working surfaces of the bricks takes place in form of plates of a thickness of from 8 - 10 mm. This shearing of the crown tiles was observed after an operation of from

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The Performance of Magnesite-Chromite Products in the Crown of a Tunnel Kiln for High Temperatures 131-58 .6-4/14

8 - 10 months of the furnace at burning temperatures of from 1580 - 1600°C. The work was ordered to introduce the production of magnesite-chromite bricks for which a raised burning temperature of up to 1700°C and more is necessary. The Leningrad Institute for Refractory Products developed a design for the reconstruction of the tunnel kilns which provided a raising of the burning temperature up to from 1700 - 1750°C. By recommendation of the UNIIO crowns of products with a high content of MgO with an Al_2O_3-content of at least 90 % were used for the crowns in the burning zone. As, however, such products are difficult to supply and are also expensive, and as the experience collected with them was not satisfactory it was decided to produce the furnace crown and the walls of magnesite-chromite bricks. The crown was built without any mortar being used, by grinding and adjusting the single titles (see figure 1). It was, however, observed that the furnace walls are curved from 100 - 140 mm to the

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center of the furnace during operation. In order to overcome this deficiency the tunnel was made 100 mm wider at the top. The heating of the furnace is carried out according to the diagram (figure 3). The operation of the furnace takes place according to the regime (figure 3). Various special refractory products are burned in the reconstructed furnace. In 1958 the crowns of all tunnel kilns are to be made of magnesite--chromite tiles. There are 3 figures.

ASSOCIATION: Zaporozhskiy ogneupornyy zavod (Zaporozh'ye Works of Refractories)

1. Refractory materials--Performance 2. Furnaces--Equipment
3. Chromium-magnesium--Temperature factors

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15 (2)

AUTHORS: Starun, V. R., Kolesnik, M. I., Dudavskiy, I. Ye., Davydov, I. P., Sokolov, I. N. SOV/131-59-9-2/12

TITLE: The Production of Unburnt Chrome-spinel Buckets

PERIODICAL: Ogneupory, 1959, Nr 9, pp 393 - 395 (USSR)

ABSTRACT: In 1959 the Zaporozh'ye Works for Refractories started the production of unburnt buckets after preliminary tests had yielded satisfactory results. For the tests two different kinds of compositions were used, as may be seen from the table. They are described in detail in the following. The experimental buckets were tested in 230 t-ladles used for steel casting at a temperature of 1580 - 1600°C. Numerous experiments proved that the unburnt chrome-spinel buckets are a perfect substitute for the burnt ones. Pressing of these buckets is carried out by means of a hydraulic press of the type P-459 with a pressing power of 630 tons. The devices and the press molds were designed by the designers of the works S. B. Eyngorn, V. V. Volnyanskiy, and M. V. Reznikova (see illustration and the subsequent description). The Zaporozh'ye Works of Refractories introduced the production

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of unburnt chrome-spinel buckets warranting a safe operation of the stopping device even under difficult conditions of steel casting. There are 1 figure and 1 table.

ASSOCIATION: Zaporozhskiy ogneupornyy zavod (Zaporozh'ye Works of Refractories)

SOV/131-58-9-2/11

AUTHOR: Starun, V. R.

TITLE: Experience Gained in the Works Department for Chromium-Magnesite Bricks of the Zaporozh'ye Plant for Fireproof Products (Opyt raboty tsekha khromomagnezitovogo kirpicha Zaporozhskogo ogneupornogo zavoda)

PERIODICAL: Ogneupory, 1958, Nr 9, pp. 396 - 403 (USSR)

ABSTRACT: The works department has been built according to the plans of the Leningradskiy institut ogneuporov (Leningrad Institute of Refractories) and started operation in November 1955. In 1957, 95% of the projected capacity were achieved. The work department manufactures chromium-magnesite bricks and templates. The manufacturing scheme is seen in figure 1. The pressing department is equipped with hydraulic 1000 t presses from the Uralmashzavod. The furnace department possesses tunnel furnaces constructed by the Leningrad Institute of Refractories. In the starting up, the following imperfections were observed: The unloading of the wagons was not suitable mechanized and the storage rooms proved to be too small. In the handling department

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an equipment for lime slaking was missing which fact caused considerable scrap. This deficiency could only be removed by a variation of the batch composition. Table 1 shows the composition of the batch of crown stones. The pneumatic conveying system proved to be unsuited for chromite and had to be replaced by a belt conveyer. The weight dosage equipment also proved to be useless, as well as the projected mixing machines. In table 2 density and resistance to compression of the productions of 1957 are tabulated. The working of the presses UZTM was also insufficient, in particular, since no mechanism for the individual regulation of the pressing effect of the various presses was provided for. Two additional friction presses had to be established for the pressing of complicated big templates. The transportation of the raw templates had to be altered as well in order to avoid three reloadings. In the tunnel furnaces according to the system of the Leningrad Institute of Refractories (Tables 2,3), which were adjusted to temperatures up to 1650°, walls and crowns could not withstand this temperature and had to be replaced by magnesite-chromite

products. The depot for the finished products (Fig 4) had to be additionally equipped with a crane and transportation machines. The consideration of the experiences gathered in the Zaporozh'ye plant will render possible the adequate elaboration of further designs. There are 5 figures and 2 tables.

ASSOCIATION: Zaporozhskiy ogneupornyy zavod (Zaporozh'ye Refractories Works)

[redacted] 69591

S/131/60/000/04/03/015
B015/B008

AUTHORS: Starun, V.R., Ksendzovskiy, V.R.

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TITLE: The Automation of High-temperature Tunnel Kilns of the Zaporozh'ye Works of Refractories

PERIODICAL: Ogneupory, 1960, No. 4, pp. 157-166

TEXT: In the paper under review the authors describe the automation of these tunnel kilns, which were erected according to the design by the Vsesoyuznyy institut ogneuporov (VIO) (All-Union Institute of Refractories) and intended for the firing of magnesite- and chromium-magnesite products at temperatures of from 1600-1700° and higher. A mixture of coke and blast-furnace gas with a calorific value of 2000/kcal/per m^3 was used as fuel. The design for the automation of these kilns had been worked out by the Tsentral'noye proyektno-konstruktorskoye byuro Glavproyektmontazhavtomatika (Central Design and Drawing Office of the Glavproyektmontazhavtomatika) in accordance with technical data of the VIO, and provided for the automatic stabilization of the gas consumption, the pressure in the kiln tunnel, and the amount of air

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The Automation of High-temperature Tunnel Kilns of the Zaporozh'ye Works of Refractories

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which is supplied from the kiln to the drying plant. An automatic measuring of the temperature in the firing zone by means of a radiation pyrometer was also envisaged. Electronic potentiometers of type EPP-09, which are inserted into the kiln with the aid of the tuyere according to Fig. 1, were used for measuring the temperature of the goods to be fired. The installation of the radiation pyrometers may be seen from Fig. 2. The dependence of temperature on the air supply is shown in Fig. 3. Investigations carried out showed that the existent high-temperature tunnel kilns can only be converted to automation with difficulty, and must be redesigned, as described in the report of the TsPKB of the Glavproyektmontazhavtomatika of the Ministerstvo stroitel'stva RSFSR (Ministry of Building Activity of the RSFSR). An experimental system of automation (Fig. 4) which provides for the control of air rarefaction in the kiln, the amount of hot air removed for drying, the combustion of fuel and the temperature in the firing zone was worked out. The following apparatus was used for this purpose: Extremum controllers of type TsNIIKA, jet pressure controllers of type RDNIA, an electronic controller of type ERK-77 with an air current pressure-gage of type TNSK, the final control element mechanism of type IM 6/120, the electronic potentiometer of type EPP-120, the final control element mechanism of type IM 2/120, the controller of type IR-130, the magnetic gas

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analyzer of type MGK-348, the primary element of type DGK-358 with hydro-compressors of type GK-5015. As may be seen from Fig. 5, the automatic control warrants the exact maintaining of the given temperature, thus increasing the quality and homogeneity of the products. The authors finally state than an installation for the automatic control of the kiln temperature at the individual points of the firing zone, a remote control of the gas supply to each individual burner, as well as an automatic pressure control in the injector ducts was worked out. This installation makes it possible automatically to maintain the temperature conditions in the tunnel kilns with great accuracy. There are 5 figures and 5 Soviet references.

ASSOCIATION: Zaporozhskiy ogneupornyy zavod (Zaporozh'ye Works for Refractories)
TsPKB Glavproyektmontazhavtomatika (Central Design- and Drawing Office of the Glavproyektmontazhavtomatika)

STARUN, V.R.; DUDAVSKIY, I.Ye.; DAVYDOV, I.P.; KOLESNIK, M.I.; RYAZANTSEV, V.D.; SAMOYLOV, I.G.; DOKUCHAYEVA, I.N.

Dressing chrome iron ores from the Kimpersaiski deposits by magnetic separation. Ogneuproy 25 no. 3:108-114 '60. (13:10)

1. Zaporozhskiy ogneupornyy zavod (for Starun, Dudavskiy, Davydov, Kolesnik, Ryazantsev). 2. Institut "Mekhanobrchermet" (for Samoylov, Dokuchayeva).
(Ore dressing) (Magnetic separation of ores)

STARUN, V.R., KSENDZOVSKIY, V.R.

Automating high-temperature tunnel kilns of the Zaporozh'ye Refractories Plant. Ogneupory 25 no.4:157-166 '60. (MIRA 13:8)

1. Zaporozhskiy ogneupornyy zavod (for Starun). 2. TSentral'noye projektno-konstruktorskoye byuro Glavproyektmontazhavtomatika (for Ksendzovskiy).
(Zaporozh'ye--Kilns) (Automatic control)

L 31003-66 FBD/EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(h) IJP(c)
ACC NR: AP6007801 SOURCE CODE: UR/0185/66/011/002/0217/0218
WG/WH

AUTHOR: Starunov, M. H.; Yer'omka, V. D.; Bonchkovs'kyy, V. Y.

ORG: Institute of Radiophysics and Electronics, AN UkrSSR, Khar'kov (Instytut radiofizyky i elektroniky AN URSR)

TITLE: Laser with maximum Q switching

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 11, no. 2, 1966, 217-218

TOPIC TAGS: laser optics, laser modulation, resonator, laser r and d, Q switching

ABSTRACT: Whereas in earlier experiments Q switching was usually effected by interrupting the coupling between the active rod and only one resonator mirror, the authors investigated the properties of a laser in which the coupling with both mirrors is interrupted. An estimate shows that the gain can be increased in this case to almost the theoretical 50%. Two variants of such a laser were tested (Fig. 1). Two ruby crystals each 24 cm long and 1.25 cm in diameter were used. One crystal operated in the Q-switching mode. The ends of the crystals and the hypotenuse faces of the total-reflection prisms were coated with MgF_2 and CaF_2 films, respectively. The resonator comprised alternating dielectric coatings of CaF_2 and ZnS (2 and 14 layers) on plate glass and the prism. The plate was rotated at 12,000 rpm. The pump illumination came from two IFP-15000 and four IFP-5000 lamps and was suffi-

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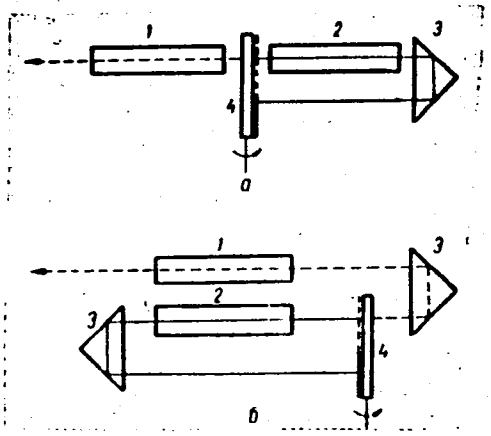
Fig. 1. Diagram of laser resonator in which the coupling between the active rod and both reflectors is interrupted. 1, 2 -- Ruby crystal, 3 -- internal-reflection prism, 4 -- plane-parallel glass plate with two dielectric coatings.



cient to cause lasing without mirrors of one crystal, by reflection from the free ends, or else of two crystals with bleached ends. In the case of a two-layer coating on the semitransparent mirror, the output energy was somewhat larger than 5 j and 30% more than in the case of a free plate. Under certain conditions, an energy of 11 j was obtained in variant a, as a result of the fact that the reso-

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SOV/51-4-6-13/24

AUTHORS: Shklyarevskiy, I.N., Starunov, N.G. and Padalka, V.G.

TITLE: Measurement of Optical Constants of Silver in the Infrared Spectral Region (Izmereniye opticheskikh postoyannykh serebra v infrakrasnoy oblasti spektra)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol IV, Nr 6, pp 792-795 (USSR)

ABSTRACT: Optical constants of metals are of great interest in the electron theory of metals if they are measured in the frequency region which satisfies the inequality given by Eq. 1 on p. 792: $\nu_0^2 \ll \omega^2 \ll \omega_0^2$, where ν_0 is the frequency of electron collisions with the crystal lattice and ω_0 is the frequency corresponding to the upper limit of the internal photoeffect. This frequency region lies usually in the infrared part of the spectrum. The present paper reports measurements of optical constants of silver in the 1-12 μ region using the methods described earlier (Refs 1, 2). In the first of these methods (Ref 1) the phase difference $\Delta = \delta_p - \delta_s$ between the p- and s- components is made equal to -180° by multiple reflection of light by two identical samples. The apparatus used is shown in Fig 1. Here S is the exit slit of a monochromator SMR-2; Z_1, Z_2, Z_3 and Z_4 are aluminized

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Measurement of Optical Constants of Silver in the Infrared Spectral Region

mirrors; P and A are a polarizer and an analyser, respectively, made of piles of six selenium plates which are placed at an angle of the order of 70° to the light-beam; M_1 and M_2 are the samples of the studied metal; B is a receiver. A parallel beam of monochromatic light passes through a polarizer, which is positioned at an angle of 45° to the plane of incidence, and falls at an angle φ on to samples M_1 and M_2. The angle of incidence is chosen to make $m\Delta = -180°$, where m is the number of reflections from metal samples. Under these conditions the light reflected from metal samples may be extinguished by the analyser. Position of the analyser gives the value ψ', which is related to the azimuth of restored polarization ψ by the relationship $\tan \psi = \sqrt{\tan \psi'}$. Knowing the angle of incidence φ, the phase difference Δ and the azimuth ψ the optical constants can be easily calculated. The second method of "rotating analyser" (Ref 2) is based on a conversion of elliptically polarized into circularly polarized light. The apparatus is the same as in Fig 1. By a suitable choice of the angle of incidence φ, for a given wavelength, the condition $m\Delta = -90°$ is satisfied and the amplitudes of the p- and s-components are made equal by a suitable rotation of the polarizer. Then the light reflected from metal surfaces

Measurement of Optical Constants of Silver in the Infrared Spectral Region

is circularly polarized. The modulated component which has passed through the rotating analyser disappears and the recording instrument shows only a constant signal. The azimuth of the restored polarization is obtained as in the first method, but Ψ now represents the angle between the chief direction of the polariser and the plane of incidence of light. From measured values of Ψ, Δ and Ψ the optical constants μ (refractive index) and $\mu\chi$ (absorption coefficient) are obtained. The optical constants of silver layers produced by evaporation in vacuum were measured by both these methods. The results are shown in the table on p. 795 whose columns give respectively the wavelength (in μ), the angles of incidence φ, the number of reflection m, the phase differences $-\Delta$, the azimuth Ψ, the refractive indices μ and the absorption coefficients $\mu\chi$. Fig 2 compares the values of the refractive index and the absorption coefficient (curves 1 and 2 respectively) obtained by the present authors (shown by open circles) with those of Forsterling and Freedericksz (Ref 7, shown by black dots) and those of Motulevich and Shubin (Ref 6 shown by half-black dots). All these values are shown as a function of wavelength and they agree well with each other, except for values of the refractive index in

Measurement of Optical Constants of Silver in the Infrared Spectral Region

the 3.5-6 μ region reported in Ref 6. In the spectral region where the inequality given by Eq. 1 on p. 792 is satisfied the conduction electron density N is independent of the wavelength λ. If N is constant it follows that $(\mu\chi)^2 - \mu^2 + 1 = f(\lambda^2)$ which should be a straight line. Such a straight line is shown in Fig 3. In the region 5-12 μ the slope of this line gives the conduction electron density as $7.4 \times 10^{22} cm^{-3}$. The experimental points in Fig 3 in the region 1-6 μ also lie on a straight line whose slope gives the conduction electron density as $5.2 \times 10^{22} cm^{-3}$, which is the same as the number of atoms of silver in 1 cm^3. The authors thank K.D. Sinel'nikov for his interest and advice. There are 3 figures, 1 table and 8 references, 4 of which are Soviet, 2 English, 1 German and 1 American.

ASSOCIATION: Khar'kovskiy gosudarstvennyy universitet im. A.M. Gor'kogo
(Kharkov State University imeni A.M. Gor'kiy)

SUBMITTED: November 15, 1957

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SOV/115-60-1-14/28

AUTHOR: Finkel'shteyn, V. Ye. and Starunov, N. G.

TITLE: A Standard Infrared Spectropyrometer

PERIODICAL: Izmeritel'naya tekhnika, 1960, Nr 1, pp 28-30 (USSR)

ABSTRACT: Design and operational information is given on the new electronic optical pyrometer "LKP-57" (Photo, Figure 1) developed by the KhGIMIP, i.e. Khar'kovskiy institut mer i izmeritel'nykh priborov (Khar'kov Institute of Measures and Measuring Instruments). The pyrometer is designed for use as a reference instrument and for laboratory purposes. Detailed description of the optical system is illustrated by a schematic diagram (Figure 2) and that of the electronic system by a circuit diagram (Figure 3). The apparatus includes an infrared monochromator like that in the IKS-11 spectrometer. The objective consists of four lenses, the inside being made of glass and the outside of fluorite. Similar objectives

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SOV/115-60-1-14/28

A Standard Infrared Spectropyrometer

were designed by the Gosudarstvennyy opticheskiy institut im. S. I. Vavilova (State Optical Institute imeni S. I. Vavilov). A table is given to show mean quadratic errors in temperature measurement made with an IKP-57 whose radiation receiver was an Fs-Al photoresistor. The circuit includes 6Zh8 and 6P6 valves. There are 1 photograph, 2 diagrams, 1 table and 1 Soviet reference.

Card 2/2

FINKEL'SHTEYN, V.Ye.; STARUNOV, N.G.

Spectropyrometer for measuring temperature by the monochromatic infrared radiation. Prib. i tekh. eksp. no.3:122-125 My-Je '60. (MIRA 14:10)

1. Khar'kovskiy gosudarstvennyy institut mer i izmeritel'nykh priborov.

(Pyrometers)

STARUNOV, S.

Immortality of a hero. Mor. flot 25 no.7:44 Jl '65. (MIRA 18:7)

1. Pervyy pomoshchnik kapitana teplokhoda "Fedor Poletayev".

STARUNOV, V.S.

Interpretation of the spectral composition of light scattered by anisotropy fluctuations in a liquid. Dokl. AN SSSR 153 no.5:1055-1057 D '63. (MIRA 17:1)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR. Predstavleno akademikom M.A. Leontovichem.

ACCESSION NR: AP4018400 S/0120/64/000/001/0221/0222

AUTHOR: Zaytsev, V. P.; Starunov, V. S.; Fabelinskiy, I. L.

TITLE: High-intensity cadmium gas-discharge lamp

SOURCE: Pribory* i tekhnika eksperimenta, no. 1, 1964, 221-222 Vol #9

TOPIC TAGS: high intensity lamp, cadmium vapor lamp, mercury vapor lamp, cadmium spectral line, mercury spectral line

ABSTRACT: As "isotopic light sources have been very expensive .... and lasers with a very narrow radiation line may become available only in the future," a low-pressure cadmium-vapor lamp has been designed whose luminous intensity is as high as that of a mercury-vapor lamp. The air between the double-walled central part 4 (see Enclosure 1) is exhausted down to 10^{-6} torr. About 6 torr of Ne and about 5% of Bi is added to the lamp atmosphere. With a discharge current of 5 amp in both the cadmium and mercury lamps, the 6435Å

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ACCESSION NR: AP4018400

Cd line is twice as intense as the 4358Å Hg line; with a 10-amp current, both lines equalize in intensity. Orig. art. has: 2 figures.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Institute of Physics, AN SSSR)

SUBMITTED: 06Apr63 DATE ACQ: 18Mar64 ENCL: 01

SUB CODE: PH NO REF SOV: 002 OTHER: 002

Card 2/2

ACCESSION NR: AP4043664 S/0056/64/047/002/0783/0784

AUTHORS: Mash, D. I.; Starunov, V. S.; Fabelinskiy, I. L.

TITLE: Investigation of the attenuation of hypersound in liquids by an optical method

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 783-784

TOPIC TAGS: hypersonic radiation, absorption coefficient, line width, fine structure, light scattering, benzene, carbon tetrachloride

ABSTRACT: Direct measurement of the width of the shifted fine-structure components has been recently made possible by the availability of a very narrow exciting line, which has made possible the measurement of the half-width of the Mandel'shtam-Brilluoin components and consequently also the coefficient of absorption of hypersound. The results of the first measurements of this type are re-

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ACCESSION NR: AP4043664

ported briefly. The investigated liquid was illuminated with a light beam having a narrow spectral width at λ = 6328 Å. The light scattered by the liquid in a direction perpendicular to the direction of the exciting light was passed through a Fabry-Perot interferometer to a camera which photographed the fine structure. The intensity distribution in the fine structure component and the half-widths were determined by photographic photometry. The half-width was found to be 0.01 cm^{-1} for benzene and 0.02 cm^{-1} for carbon tetrachloride. This yields a hypersound absorption coefficient of 7×10^3 cm^{-1} and 2×10^4 cm^{-1} for benzene and carbon tetrachloride, at frequencies 4.8 and 3.2 Gc, respectively. The use of very narrow spectral lines makes it possible to study quantitatively the attenuation of hypersound, the temperature conductivity, and also the diffusion and dimensions of molecules in solutions. "The authors thank V. P. Zaytsev who made possible the use of mirrors with multilayer dielectric coatings, and Ye. V. Tiganov for participating in the measurements."

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ACCESSION NR: AP4043664

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences SSSR)

SUBMITTED: 23May64 ENCL: 00

SUB CODE: GP NR REF SOV: 003 OTHER: 003

Card 3/3

MASH, D.I.; STARUNOV, V.S.; FABELINSKIY, I.L.

Studying the attenuation of hypersound in liquids by the optical method. Zhur. eksp. i teor. fiz. 47 no.2:783-784 Ag '64. (MIRA 17:10)

1. Fizicheskiy institut imeni P.N.Lebedeva AN SSSR.

L 64117-65 EWP(e)/EWT(m)/EPF(c)/EWP(i)/EWP(j)/EWA(c) RPL WW/JW/RM/WH

ACCESSION NR: AP5021149 UR/0386/65/002/001/0041/0045

AUTHOR: Mash, D. I.; Morozov, V. V.; Starunov, V. S.; Fabelinskiy, I. L.

TITLE: Stimulated scattering of the Rayleigh line wing

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 1, 1965, 41-45, and insert B at rear of journal

TOPIC TAGS: nonlinear optics, stimulated scattering, Rayleigh line wing, line wing scattering, ruby laser, laser induced scattering, carbon disulfide, benzene, toluene, nitrobenzene, acetic acid, salol, triacetin

ABSTRACT: The discovery of a new effect, the stimulated scattering of the Rayleigh line wing, is reported. The new phenomenon was investigated in carbon disulfide, benzene, nitrobenzene, toluene, acetic acid, salol, and triacetin, which were excited by a pulsed (~100 Mw), Q-modulated ruby laser (see Fig. 1 of the Enclosure). The Q-switch consisted of two containers C_1 and C_2, each 1 cm thick

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ACCESSION NR: AP5021149 2

and filled with a 1.8×10^{-6} M solution of cryptocyanine in methyl alcohol. The effect was observed in carbon disulfide and nitrobenzene at room temperature and in salol at 170C. Under identical conditions, the same effect was not observed in the remaining liquids, although stimulated Brilluin scattering was observed in all of the liquids, with the exception of tracetin. In nitrobenzene, salol, and carbon disulfide the stimulated Rayleigh line wing exhibited a distinct threshold. The existence of this threshold, a scattering intensity comparable to the excitation intensity, the presence of the intensity maximum in a wing, and the absence of the anti-Stokes wing, all point to the occurrence of the new effect. Orig. art. has: 2 formulas and 3 figures. [YK]

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute, Academy of Sciences, SSSR) 44

SUBMITTED: 22May65 ENCL: 01 SUB CODE: EC, NP

NO REF SOV: 003 OTHER: 002 ATD PRESS: 4070

Card 2/3

L 64117-65

ACCESSION NR: AP5021149

ENCLOSURE: 01

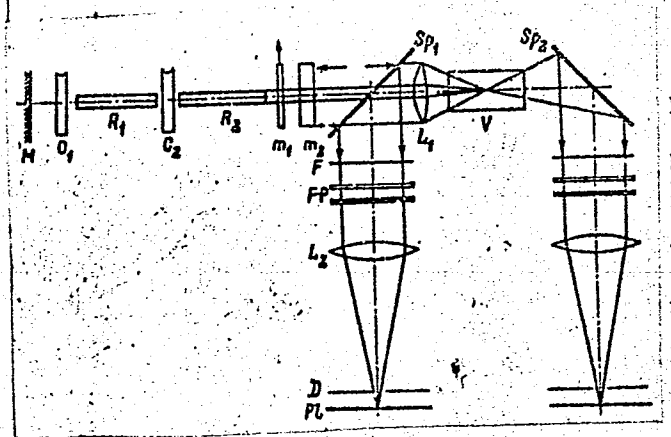

Fig. 1. Experimental apparatus

M - mirror (R = 100%); R_1, R_2 - ruby rods each 12 cm long and 1.2 cm in diameter; m_1, m_2 - plane-parallel plates; Sp_1, Sp_2 - glass plate separators; L_1 - lens (f = 3 cm); L_2 - lens (f = 120 cm).

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L 6357-66 EWT(l)/EWT(m)/EWP(i)/EWP(b)/T/EWP(e) IJP(c) WH

ACC NR: AP5026105 SOURCE CODE: UR/0386/65/002/005/0246/0250

44,55 44,55 44,55 44,55 44,55

AUTHOR: Mash, D. I.; Morozov, V. V.; Starunov, V. S.; Tiganov, Ye. V.; Fabelinskiy, I. L.

77

44,55

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences, SSSR (Fizicheskiy institut Akademii nauk SSSR) B

TITLE: Stimulated Brillouin scattering in solid amorphous bodies and liquids

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 5, 1965, 246-250

TOPIC TAGS: Brillouin scattering, stimulated scattering, stimulated Brillouin scattering, laser, laser effect, nonlinear effect, nonlinear optics 21,44,55

ABSTRACT: Stimulated Brillouin scattering was observed in three kinds of optical glasses, fused quartz, and seven different liquids excited by a giant pulse from a ~100 Mw ruby laser using a setup described previously (Mash, D. I., et al. Pisma ZhETF, 2, 41, 1965). Table 1 lists some of the experimental data on the Brillouin shifts $\Delta\nu$, the hypersonic acoustic velocity ν calculated from the present experimental data on $\Delta\nu$, ν determined from ordinary (spontaneous) Brillouin shifts, and ν obtained from direct hypersonic measurements. The systematic differences between the hypersonic acoustic velocities calculated from the spontaneous Brillouin shifts and those obtained from stimulated Brillouin scattering were within the limits of

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L 6357-66

ACC NR: AP5026105

Table 1. Hypersonic acoustic velocities

Material	Stimulated Br. Scattering		Spontaneous Br. Scatt.	Hypersound Measurements
	$\Delta\nu, cm^{-1}$	v, m/sec	v, m/sec	v, m/sec
Fused quartz	0,8II±0.004	5804±30	5990 5840	5968
Crown glass	0,856±0,005	5906±40	-	-
Benzene	0,206±0,002	I434±I5	I47I±	I324
Nitrobenzene	0,232±0,002	I546±I5	-	I473
Carbon disulfide*	0.I8I±0.002	II62±I5	I265±22	II58
	0,I92±0,002	I232±I5		
Acetic acid	0,I45±0,002	II05±20	II40±35	II44
Salol 20C	0.232±0,002	I544±I5	-	-
180C	0.I06±0.002	740±20		

*The upper value is given for the case when ~10 components were observed; the lower value, when 2 components were observed.

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ACC NR: AP5026105

experimental error for all materials tested except carbon disulfide. The hypersonic velocity in carbon disulfide decreased with an increasing number of Brillouin components and increased with an increasing power of the pulses. The dependence of velocity (or $\Delta\nu$) on the number of components was attributed to heating of the scattering medium due to absorption of hypersound. It is possible that a small decrease in hypersonic velocity also occurred in other materials. Such a decrease would limit the accuracy with which the hypersonic velocity could be determined by means of stimulated Brillouin scattering. The ~5% dispersion observed in nitrobenzene at 20C made it possible to evaluate its main relaxation parameters. Orig. art. has: 2 figures and 1 table. [CS]

SUB CODE: OP/ SUBM DATE: 19Jul65/ ORIG REF: 004/ OTH REF: 010/ ATD PRESS: 4141

Card 3/3 RDS

L 10646-66 FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/IJP(c)
ACC NR: AP6002662 WG/WH SOURCE CODE: UR/0386/65/002/012/0562/0566

AUTHOR: Mash, D. I.; Morozov, V. V.; Starunov, V. S.; Fabelinskiy, I. L.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Stimulated Brillouin scattering in gas

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 2, no. 12, 1965, 562-566, and insert facing page 584

TOPIC TAGS: laser, gaseous laser, nonlinear optics, Brillouin scattering

ABSTRACT: The authors report observing stimulated Brillouin scattering in hydrogen at a pressure of 95 atm, in nitrogen at 100 and 125 atm, and in oxygen at 75, 100, and 150 atm using an experimental setup described in Zhurnal eksperimental'noy i teoreticheskoy fiziki, Pis'ma v redaktsiyu, v. 2, no. 1, 1965, p. 41. The focused output of the Q-switched ruby laser was 250 Mw. Four Stokes components were observed in nitrogen, four Stokes components and one faint anti-Stokes component were observed in oxygen, and two Stokes components were observed in hydrogen. The hypersound velocities determined from the experimental data are listed in Table 1, together with the adiabatic and isothermal velocities and certain parameters of the medium and experimental conditions. Stimulated Brillouin scattering was not observed in

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L 10646-66

ACC NR: AP6002662

Table 1.

	P, atm	n	$f \cdot 10^{-9}$,	$\Lambda^{*} \cdot 10^{5}$, cm	$\alpha\Lambda^{**}$	Experimental data		Vadiaba, m/sec	V isothermal m/sec
						$\Delta V \cdot 10^{2}$ cm	Hypersound velocity (m/sec)		
N_2	125	1.035	0.84	3.3	0.06	2.8±0.1	280±10	352	297
O_2	150	1.038	0.99	3.3	0.06	3.3±0.3	330±30	331	280
H_2	95	1.012	3.3	3.4	0.14	11±1	1130±100	1334	1127
He	140	1.005	2.6	3.5	1.7	-	-	1008	783

*Λ is the wavelength of hypersound
**α is the amplitude coefficient for sound absorption

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L 10646-66

ACC NR: AP6002662

helium even at a pressure of 140 atm. The experimental data are interpreted in terms of the classical theory developed earlier by one of the authors (Fabelinskiy). Orig. art. has: 1 figure and 1 table. [CS]

SUB CODE: 20 / SUBM DATE: 09Nov65/ ORIG REF: 004/ OTH REF: 003/

ATD PRESS: 4169

HW

Card 3/3

L 34873-65 EWT(1)/EEC(t)/EEC(b)-2 Pi-4 IJP(c)
ACCESSION NR: AP5005044 S/0051/65/018/002/0300/0310

22
21
B

AUTHOR: Starunov, V. S.

TITLE: Scattering of light by anisotropy fluctuations in low-viscosity liquids

SOURCE: Optika i spektroskopiya, v. 18, no. 2, 1965, 300-310

TOPIC TAGS: anisotropy fluctuation, light scattering, Rayleigh scattering, line broadening, relaxation time

ABSTRACT: In view of the limited number of papers devoted to the theory of light scattered by a liquid, the author uses some concrete molecular models to calculate the spectral distribution of the intensity of the polarized scattering (the skirt of the Rayleigh line). A formula for the intensity distribution of the skirt is obtained within the framework of the Leontovich relaxation theory (J. Phys., v. 4, 499, 1941). The effect of the rotational Brownian motion on the line broadening is calculated using the Fokker-Planck equation for the probability density in the angle and velocity space. In addition, a photoelectric method is described for recording the spectral distribution of the intensity in the skirt and experimental

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L 34873-65
ACCESSION NR: AP5005044

results are presented for five low-viscosity liquids (carbon disulfide, chloroform, toluol, benzene, and acetic acid). The anisotropy relaxation times, the viscosity relaxation times, and the frequencies of the elastic vibrations of the molecules are calculated by comparing the experimental and the theoretical results for these liquids. The lifetimes of the molecules in the potential well is estimated on the basis of the experimental data and found to be several times smaller than the anisotropy relaxation times for the liquids in question (ranging from 5×10^{-13} to 2×10^{-12} sec). "The author thanks I. L. Fabelinskiy under whose guidance this work was performed." Orig. art. has: 7 figures, 21 formulas, and 2 tables.

ASSOCIATION: None

SUBMITTED: 22Feb64 ENCL: 00 SUB CODE: OP

NR REF SOV: 015 OTHER: 017

Card 2/2

L 15009-66 EWT(l)/EWT(m)/EWP(j) IJP(c) WW/GG/RM

ACC NR: AP6001640 SOURCE CODE: UR/0051/65/019/006/0893/0896

AUTHOR: Zaytsev, G. I.; Starunov, V. S.

ORG: none

TITLE: Width and shape of depolarized lines of Raman light scattering and of the limb of the Rayleigh line in liquids

SOURCE: Optika i spektroskopiya, v. 19, no. 6, 1965, 893-896

TOPIC TAGS: Raman scattering, Raman spectrum, benzene, chloroform, carbon tetrachloride, toluene, spectrum analysis, LINE SPECTRUM

ABSTRACT: The authors study the distribution of intensities with respect to frequency in the spectrum for the limb of the Rayleigh line and compare the resultant data with intensity distribution in the spectrum of depolarized lines for Raman light scattering in liquids in the widest possible frequency interval. The Raman spectra of the following lines were studied: benzene 606 and 1178 cm^{-1}, carbon tetrachloride 313 cm^{-1}, chloroform 261 and 761 cm^{-1} and toluene 217 cm^{-1}. The experimental equipment is described. The intensity distribution with respect to

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frequencies for the limb of the Rayleigh line and for the Raman scattering line at 261 cm^{-1} for chloroform agree within the limit of experimental error from 25 to 80 cm^{-1}. A divergence is observed between these curves in the short range region below 25 cm^{-1}. The contour for the limb of the Rayleigh line in this spectral region shows more of a slope than that for the Raman scattering line. The same type of relationship is observed between these curves for the depolarized 761 cm^{-1} line of chloroform and on the 313 cm^{-1} line in carbon tetrachloride. The intensity of the Raman scattering line at 217 cm^{-1} in toluene falls faster far from the maximum of the line than does the intensity of the limb of the Rayleigh line in this region. In the short range region, the contour of the Raman scattering line falls more slowly than the contour of the corresponding Rayleigh line. The contour of the 1178 cm^{-1} Raman scattering line in benzene coincides with that of the limb of the Rayleigh line in a comparatively wide spectral interval. Divergence between these two curves takes place only in the extremely long range section. The intensity of the Raman scattering line at 606 cm^{-1} falls considerably faster than that of the Rayleigh line in benzene. A theoretical explanation is given for the results. In conclusion the authors are grateful to I. L. Fabelinskiy for guidance in the work and to I. I. Sobel'man for valuable discussion of problems encountered in this work. Orig. art. has: 4 figures.

SUB CODE: 20/ SUBM DATE: 21Jul64/ ORIG REF: 009/ OTH REF: 001

L 13271-66 EWT(l)/EWT(m)/EEC(k)-2/EWP(j)/T/EWP(k)/EWA(m)-2 IJP(c) WG/RM

ACC NR: AP6002715 SOURCE CODE: UR/0056/65/049/006/1764/1773

AUTHOR: Mash, D. I.; Starunov, V. S.; Tumanov, Ye. V.; Fabelinskiy, I. L.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: The intensity and width of the Brillouin components in liquids and the damping of hypersound

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 6, 1965, 1764-1773

TOPIC TAGS: hypersound, ~~scattering~~, Rayleigh scattering, Brillouin ~~scattering~~, ~~fluctuation~~, ~~irreversible~~ thermodynamics, laser

ABSTRACT: An expression is derived for the relaxation time of bulk viscosity on the basis of the hydrodynamic and relaxation theories for sound propagation in a liquid. This makes it possible to determine the relaxation time from measurements of sound absorption and sound dispersion and to check the validity of the simplest relaxation theory with one relaxation time. In the experiments conducted, an He—Ne laser was used to investigate the spontaneous Brillouin scattering in the following liquids: C_6H_6, CCl_4, $CHCl_3$, $C_6H_5CH_3$, and CH_2Cl. The hypersound velocity in these liquids at a frequency of 4×10^9 cps was determined from the distances between the peaks of the Brillouin components, while the coefficient of absorption was determined from their

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L 13271-66
ACC NR: AP6002715

linewidths. The experimental data for some liquids agreed with the results of the relaxation theory involving one relaxation time. The relative intensities of the Brillouin components were measured and compared with theoretical data. Orig. art. has: 10 formulas, 4 tables, and 5 figures. [CS]

SUB CODE: 20/ SUBM DATE: 21Jul65/ ORIG REF: 012/ OTH REF: 012/ ATD PRESS: 4/8

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L 24204-66 EWT(l)/EWP(e)/EWT(m)/T/EWP(t) IJP(c) JD/WH

ACC NR: AP6014615 SOURCE CODE: UR/0386/66/003/009/0378/0382

AUTHOR: Krivokhizha, S. V.; Mash, D. I.; Morozov, V. V.; Starunov, V. S.; Fabelinskiy, I. L.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Induced Mandel'shtam-Brillouin scattering in single-crystal quartz at temperatures 2.1--300K

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 3, no. 9, 1966, 378-382

TOPIC TAGS: quartz, single crystal, light scattering, laser application, line shift

ABSTRACT: The following effects were observed in induced Mandel'shtam-Brillouin scattering (IMBS) in single-crystal quartz: a strong increase in the shift of the Stokes component, due to the quasilongitudinal hypersonic wave, as the temperature was lowered from 80 to 2.1K; occurrence of a Stokes component of IMBS due to the quasitransverse wave at 80K and a difference in the character of the damage to the single crystal in the focused laser beams at different temperatures and for practically constant light-pulse power. The investigation was made with a previously-described installation (Pis'ma ZhETF v. 2, 41, 1965). The giant light pulse from a ruby laser, of ~250 Mw power, was focused onto the interior of the crystal sample, which was either at room temperature or placed in a cryostat filled with liquid helium or liquid nitrogen. All crystal samples were cut from a single block of

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Brazilian quartz. The frequency shifts $\Delta\nu$ of the Stokes components are tabulated. It is shown that $\Delta\nu$ doubles in the temperature interval 80--4K and continues to increase with decreasing temperature. To explain the observed large increase in the frequency it must be assumed that under the conditions of the experiment the refractive index and the speed of the hypersound change noticeably under the influence of the strong electric field of the light wave at low temperature. An analysis shows that the influence of the electric field on the refractive index and the speed of the hypersound are apparently not the only causes of the observed appreciably increase of $\Delta\nu$ at low temperature. The observed strong difference in the outward appearance of the damage in the single crystal of quartz at different temperatures is attributed to the fact that at 80K the absorption of the hypersound is somewhat smaller than at 300K, and this decrease is apprently sufficient to produce under certain conditions IMBS without damaging the crystal. When the temperature is lowered to 4.2K, the absorption coefficient becomes even smaller, and usually no damage occurs. If damage is still observed in this case, it can be attributed to the strong narrowing of the light channel, and consequently the increase in the intensity of the light and hypersound. The authors thank L. V. Keldysh and Yu. P. Rayzer for useful remarks made during the discussion of the results, and to O. B. Vol'skaya, M. A. Vysotskaya, and V. P. Zaytsev for help with the work. Orig. art. has: 1 formula and 1 table. [02]

SUB CODE: 20/ SUBM DATE: 19Mar66/ ORIG REF: 007/ OTH REF: 005/ ATD PRESS: 4245

L 35884-66 EWT(l)/EWT(m)/EWP(j) RM
ACC NR: AP6024514 SOURCE CODE: UR/0386/66/004/002/0054/0057

AUTHOR: Zaytsev, G. I.; Starunov, V. S.

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Angular distribution of intensity in the thermal wing of the Rayleigh line in liquids

SOURCE: Zh eksper i teor fiz. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 2, 1966, 54-57

TOPIC TAGS: spectral distribution, light scattering, Rayleigh scattering, luminescent material, fluorescence spectrum, light polarization, complex molecule

ABSTRACT: The authors have investigated the spectral distribution of the intensity of scattered light in the wing of the Rayleigh line in the frequency interval 0 - 100 cm^{-1} from the undisplaced line in benzene, carbon disulfide, toluene, carbon tetrachloride, salol, and benzophenone at scattering angles 60, 90, and 120°. The measurements were made with apparatus described earlier (Optika i spektroskopiya v. 19, 800, 1965), with the fluorescence of a solution of quinine sulfate serving as the reference. The measurements consisted essentially of determining the intensity ratios for 60 and 120° (z_1) and for 90 and 120° (z_2). For benzene, z_1 was equal to unity in the frequency interval 0 - 20 cm^{-1} and increased slowly from 20 to 90 cm^{-1}. A similar relation was observed for toluene at room temperature and for salol at 120C. For carbon

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L 35884-66

ACC NR: AP6024514

disulfide, carbon tetrachloride, benzophenone, and salol at room temperature, a symmetrical scattering indicatrix is observed. The ratio z_2 is equal to 0.81 when the liquid is excited with polarized light and 0.98 for natural light. The results are interpreted in light of the short-range order of the molecules and the correlation of their oriented motion, but it is still impossible to present a quantitative explanation of the results. The authors thank I. L. Fabelinskiy for direction of the work. [02]
Orig. art. has: 1 figure.

SUB CODE: 20/ SUBM DATE: 14May66/ ORIG REF: 004/ ATD PRESS: 5037

Card 2/2

L 04619-67 EWT(m)/EWP(j) JW/RM

ACC NR: AP6034272 SOURCE CODE: UR/0386/66/004/007/0262/0266

AUTHOR: Starunov, V. S.; Tiganov, Ye. V.; Fabelinskiy, I. L. 68 B

ORG: Physics Institute im. P. N. Lebedev, Academy of Sciences SSSR (Fizicheskiy institut Akademii nauk SSSR)

TITLE: Spectrum of light scattered by density and anisotropy fluctuations in liquid nitrobenzene

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 7, 1966, 262-266

TOPIC TAGS: nitrobenzene, light scattering, laser application, hypersound speed, relaxation process, spectral line, line splitting

ABSTRACT: Since the thermal scattering spectrum of nitrobenzene has not yet been investigated, the authors used a gas laser (λ = 6328 Å) as the light source to study simultaneously the narrow diffuse wing and the fine-structure lines of the interference spectrum. The apparatus was the same as used by the authors earlier (ZhETF v. 49, 1764, 1965), but the scattered light passed through a Wollaston prism oriented in such a way that one of its principal planes was perpendicular to the scattering plane (Z-polarization) and the other parallel to it (X-polarization). Results of the measurements of the speed of hypersound and the width of the Mandel'shtam-Brillouin components in nitrobenzene at 20C show that the diffuse wing superimposed on the fine-structure components is depolarized, and the Rayleigh triplet in nitrobenzene is line-

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ACC NR: AP6034272 O

arly polarized. Earlier estimates have shown that in nitrobenzene almost half the integral intensity of the wing is located in the part that is superimposed on the frequency region occupied by the fine-structure lines. Measurements of the actual width of this part of the wing in nitrobenzene have shown that it amounts to ~0.20 cm^{-1}. The anisotropy relaxation time corresponding to this width is $\tau \approx 5 \times 10^{-11}$ sec. It is therefore to be assumed that nitrobenzene, when used as the working medium in a light modulator based on the Kerr effect, is characterized by two times, one equal to 5×10^{-11} sec, and the other smaller than 10^{-12} sec, and that both processes characterized by these times should play approximately equal roles. The intensity ratio in the Rayleigh triplet (the Landau-Placzek ratio) was also measured, with the influence of the depolarized scattering excluded, to allow for the distortion in the intensity distribution in the triplet. The measurement results and the relaxation parameters calculated from them are listed in a table. Differences between the values calculated from the dispersion of the speed of sound and the width of the Mandel'shtam-Brillouin components are attributed to the large error in the measurement of the MBC width or to the use of simplified formulas with a single τ for the earlier calculations. The authors thank V. P. Zaytsev for help in the work. Orig. art. has: 3 figures and 1 table.

SUB CODE: 20/ SUBM DATE: 08Jul66/ ORIG REF: 004/ OTH REF: 002 /
ATD PRESS: 5100

Card 2/2 LC

KUTSYN, L.M., inzh.; STARUNSKIY, M.A., inzh.

Angular joint of screw conveyors. Mashinostroenie no.2:92 Mr-Ap '65. (MIRA 18:6)

ZHIDIK, A.V.; MATOSHIN, V.M.; OVETSKAYA, N.M.; ONOPKO, B.N.; STARUSHCHENKO, A.S.; SHAPTALA, A.A.; MEL'NIKOV, Ye.B., red.; KUZ'MINA, N.S., tekhn.red.

[Physician's advice to miners] Sovety vracha shakhteram. Moskva, Gos.izd-vo med.lit-ry, 1960. 28 p. (MIRA 13:11)
(MINERS--DISEASES AND HYGIENE)

SHUMILOV,V.V. kandidat tekhnicheskikh nauk; TARASENKO,V.I.; GALKINA K.A. STARUSHENKO,A.S.; SHAPTALA,A.A.

Experience of dry dust catching in working with the ShBM-1 cutter-loader. Ugol' 30 no.5:46-47 My '55. (MIRA 8:6)

1. Mladshiy nauchnyy sotrudnik Donskogo nauchno-issledovatel'skogo ugol'nogo instituta (for Tarasenko) 2. Zaveduyushchaya laboratoriyey gigiyeni truda (for Galkina) 3. Mladshiy nauchnyy sotrudnik Instituta Fiziologii truda (for Starushenko) 4. Mladshiy nauchnyy sotrudnik Instituta Fiziologii truda (for Shaptala) (Donets Basin--Coal mining machinery) (Mine dust)

STARUSHCHENKO, A.S.

Controlling dust in mining flat seams. Bor'ba s sil. 5:10[illegible]110 '62. (MIRA 16:5)

1. Gosudarstvennyy Donetskiy nauchno-issledovatel'skiy institut fiziologii truda.

(Mine dusts—Prevention)

YAVORSKIY, N.P. [LAvors'kyi, M.P.]; KOVAL', V.S.; STARUSHCHENKO, M.M.

Color reactions of n-benzoquinone and chloranil with medicinal preparations. Farmatsev. zhur. 20 no.5:31-37 '65. (MIRA 18:11)

1. Kafedra farmatsevticheskoy khimii L'vovskogo meditsinskogo instituta.

SUKHAREVSKIY, V. M., kand. tekhn. nauk; SHEIN, L. M., inzh.; VASILENKO, V. P., inzh.; DRANITSYN, Ye. S., inzh.; STARUSHCHENKO, A. S., nauchnyy sotrudnik

Role of wetting and the moisture regime of coal in the massif. Ugol' Ukr. 7 no.4:42-43 Ap '63. (MIRA 16:4)

1. Institut gornogo dela AN UkrSSR (for Sukharevskiy, Shein, Vasilenko, Dranitsyn).

(Coal mines and mining)
(Mine dusts—Prevention)

STARUSHENKO, L.I.

Intra-arterial injection of a solution of sodium lactate with aminokrovin (lactamine) into animals following massive hemorrhage. Fiziol. zhur. [ukr.] 8 no.5:638-643 S-O '62. (MIRA 17:11)

Kiyev Research Institute for Blood Transfusion and Emergency Surgery.

STARUSHENKO, L.I.

Correcting circulatory disorders after loss of blood by introducing a solution of sodium lactate enriched with amino acids. Vrach. delo no.12:16-20 D '61. (MIRA 15:1)

1. Kiyevskiy nauchno-issledovatel'skiy institut perelivaniya krovi i neotlozhnoy khirurgii. Nauchnyy rukovoditel' - prof. I.I.Fedorov.
(AMINO ACIDS--THERAPEUTIC USE)
(SODIUM LACTATE--THERAPEUTIC USE)
(BLOOD--CIRCULATION, DISORDERS OF)

STARUSHENKO, L.I. (Kiyev)

Hemodynamic effect of the intravenous administration of protein hydrolysate, prepared by the Central Institute of Hematology and Blood Transfusion, in association with sodium lactate. Pat. fiziol. i eksp. terap. 6 no.6:65-66 N-D '62 (MIRA 17:3)

1. Iz Kiyevskogo nauchno-issledovatel'skogo instituta perelivaniya krovi i neotlozhnoy khirurgii (dir.- dotsent S.S. Lavrik).

FINKEL'SHTEYN, P.K.; GOLENDA, V.F.; STARUSHKINA, N.A.

New classification indices for Donets Basin coals. Koks i khim. no.9:6-10 '63. (MIRA 16:9)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut.
(Donets Basin--Coal--Classification)

STARUSZKIEWICZ, A.

Propagation of the Riemann tensor in the theory of gravitation.
Bul Ac Pol mat 12 no. 5:271-273 '64.

1. Institute of Physics, Jagiellonian University, Krakow.
Presented by L.Infeld.

STARICHKO, K. K.

STARICHKO, K. K.

Bee Culture - Equipment and Supplies

Waxing frames with electricity. Pchelovodstvo, 29, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952 1953, Uncl.

SIMIC, M.M.

Bee Culture

Disinfection hives. Pchelovodstvo 29, no. 9, 1952.

[illegible] LIST [illegible], [illegible], [illegible] 1952. UNCLASSIFIED.

P/0045/63/024/006/0735/0740

ACCESSION NR: AP4011792

AUTHOR: Staruszkiewicz, A.

TITLE: Gravitation theory in three-dimensional space

SOURCE: Acta physica polonica, v. 24, no. 6, 1963, 735-740

TOPIC TAGS: space, three-dimensional space, gravitation, gravitation theory, curvature tensor, tensor field, Riemann-Christoffel tensor, mixed Riemann-Christoffel tensor, Ricci tensor, second-order covariant tensor, three-dimensional space gravitation theory

ABSTRACT: Article considers gravitation theory in a three-dimensional space with two space and one time spaces. Author assumes that the space of events is a three-dimensional Riemann space with signature (+ --) and that the metric tensor satisfies the Einstein equation

$$R_{mn} - \frac{1}{2} R g_{mn} = kT_{mn}. \quad (1)$$

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ACCESSION NR: AP4011792

In three dimensional space, the following relation between the curvature tensor and Ricci tensor holds true:

$$R_{abcd} = \left(R^{mn} - \frac{1}{2} R g^{mn} \right) E_{mab} E_{ncd}. \qquad (2)$$

where E_{abc} is the completely antisymmetric tensor for $R_{mn} = 0$, equation (2) yields

$$R_{abcd} = 0. \qquad (3)$$

The equation $R_{mn} = 0$ implies that space-time is flat. No local gravitational interactions are implied. The motions of bodies with finite mass admitted by the relativistic field equations is a locally free motion because the path of the body in Euclidean space is a straight line. The space produced by these bodies can be determined by cutting out certain regions from the Euclidean space and then connecting the edges by analytically mapping the plans $z = x + iy$ on the region through which w varies. A residual gravitational interaction exists however. The trajectories of the particle are not Euclidean.

Card 2/3

ACCESSION NR: AP4011792

Intersecting trajectories can occur twice. It is quite obvious that such trajectories cannot exist within the framework of a Euclidean space. Orig. art. has 4 figures and 21 equations.

ASSOCIATION: Institute of Theoretical Physics, Jagellonian University, Cracow

SUBMITTED: 31May63 DATE ACQ: 04Feb64 ENCL: 00

SUB CODE: MM, PH NO REF SOV: 001 OTHER: 001

Card 3/3

[illegible], A. M.

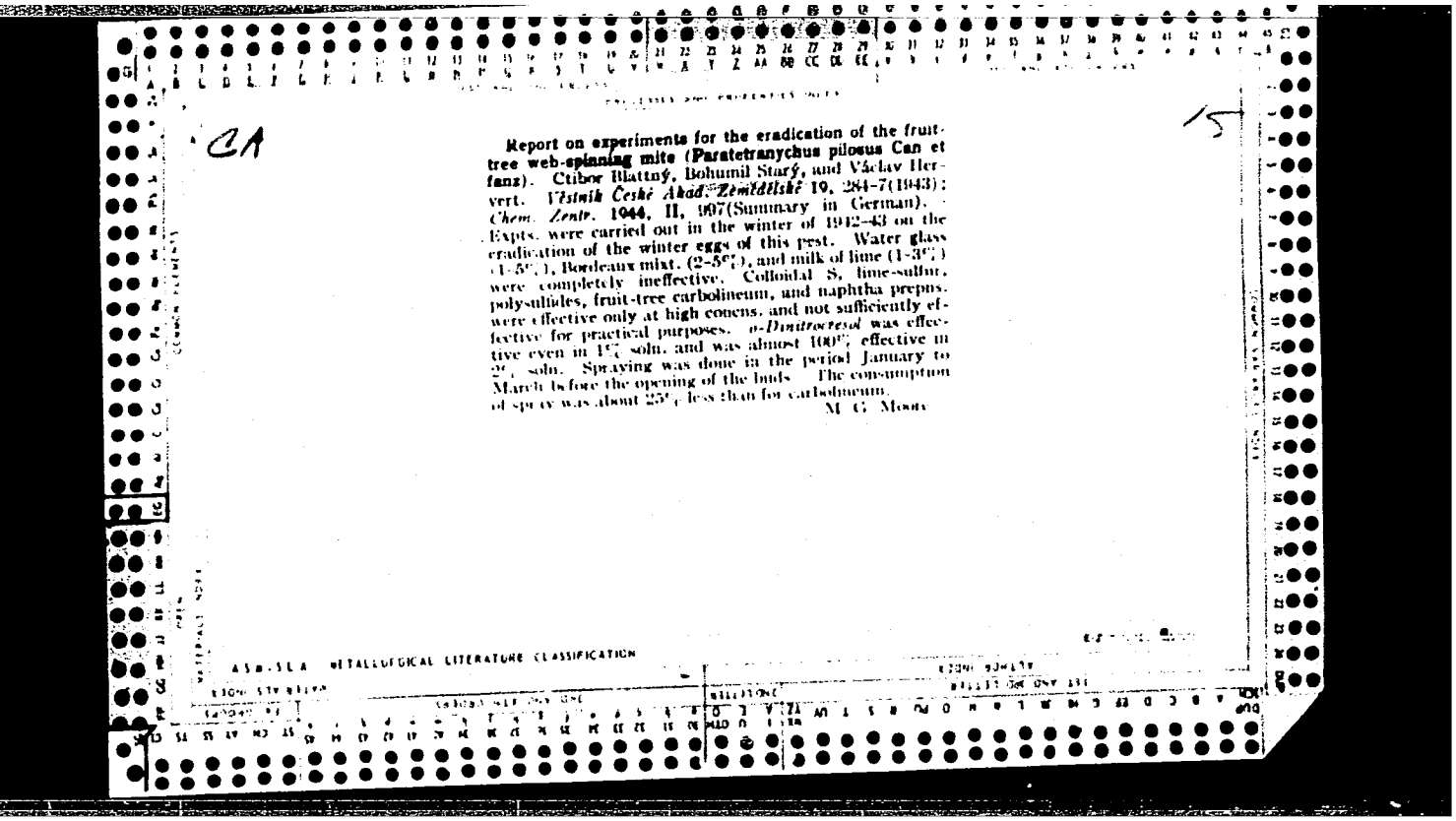
[illegible], A. M.- "Methods of Increasing the Productivity of Red Steppe Cattle of the Kolkhozes of the Mi[illegible]malovskiy Gosplemrassadnik." All-Union Sci Res Inst of Animal Husbandry, Moscow, 1955 (Dissertations for Degree of Candidate of Agricultural Sciences)

SO: Knizhnaya Letopis' No. 26, June 1955, Moscow

Electrochemical determination of the seed value of potato tubers by means of the reduction-oxidation potential. B. Starý. *Ochr. Rost.* 14, 53-5(1938); *Rev. Appl. Mycol.* 17, 549-60.—In pulped tissue of diseased potato tubers the oxidation-reduction potential varied between 200 and 520 mv. whereas the range for healthy tubers was 100 to 350 mv. The lower the potential the higher the seed value but the overlapping of the limits and the delicate nature of the test limit its usefulness.

Oden E. Sheppard

METALLURGICAL LITERATURE CLASSIFICATION



CA

15

Report on experiments for the eradication of the fruit-tree web-spinning mite (Paratetranychus pilosus Can et fanz). Ctibor Blattný, Bohumil Starý, and Václav Hervert. *Věstník České Akad. Zemědělské* 19, 284–7(1943); *Chem. Zentr.* 1944, II, 997(Summary in German). — Expts. were carried out in the winter of 1942–43 on the eradication of the winter eggs of this pest. Water glass (1–5%), Bordeaux mixt. (2–5%), and milk of lime (1–3%) were completely ineffective. Colloidal S, lime-sulfur, polysulfides, fruit-tree carbolineum, and naphtha preps. were effective only at high concns. and not sufficiently effective for practical purposes. *o-Dinitrocresol* was effective even in 1% soln. and was almost 100% effective in 2% soln. Spraying was done in the period January to March before the opening of the buds. The consumption of spray was about 25% less than for carbolineum.

M. G. Moore

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

CZECHOSLOVAKIA/General and Special Zoology. Insects. P
Insect and Mite Pests. Fruit and Berry
Crop Pests.

Abs Jour : Ref Zhur-Biol., No 20, 1958, 92203

Author : Stary, B.
Inst : -
Title : Cicada Damage to Fruit Trees.

Orig Pub : Ovocnar. a zelinar., 1957, 5, No 10, 297-298

Abstract : In 1957, in certain localities of Czechoslovakia considerable damage to fruit tree leaves was observed. This damage was caused by the larvae and adult cicadas, Typhlocyba quercus, Cicadella stellulata, Erythroneura ordinaria, Empoasca flavescens, and Oncopsis flavicollis. The error of underestimating

Card : 1/2

CZECHOSLOVAKIA / General and Special Zoology. Insects. P
Harmful Insects and Arachnids. Pests
of Fruit and Berry Cultures.

Abs Jour: Ref Zhur-Biol., No 14, 1958, 64093.

Author : Stary, B.
Inst : Not given.
Title : A New Experiment in Protection of Plants from the Appletree Mite.

Orig Pub: Ovocnar. a zelinar., 1957, 5, No 12, 361.

Abstract: No abstract.

Card 1/1

63

CZECHOSLOVAKIA/General and Special Zoology. Insects. P
Insect and Mite Pests. Pests of Commercial Oil-Bearing, Medicinal and Essential Oil-Bearing Crops.

Abs Jour : Ref Zhur-Biol., No 20, 1958, 92190

Author : Stary, B.
Inst : -
Title : Where and How Does the Hop Spider Mite Hibernate?

Orig Pub : Chmelarstvi, 1957, 30, No 10, 152-153

Abstract : The current opinion of hop growers that the hop mite (M; Epitranychus althaeae) hibernates in the soil and in the cracks of the supporting poles, is refuted. Thorough and numerous examinations of the soil, the locations of hop cutting and the cracks

Card : 1/4

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CZECHOSLOVAKIA/General and Special Zoology. Insects. P
Insect and Mite Pests. Pests of Commercial Oil-Bearing, Medicinal and Essential Oil-Beraing Crops.

Abs Jour : Ref Zhur-Biol., No 20, 1958, 92190

in the poles have established the fact that only single M hibernate there. The bulk of the pests hibernates in the stipules of the leaves, grasses, under the big dry leaves (of the European elder and of the brudock), under the dead bark of the fruit trees (particularly apple trees), and in gardens overgrown with weeds. In all these places the hibernating (red) M were found en masse. If the hop fields are close to the blackberry bushes (Rubus), violets and other plants retai-

Card : 2/4

Special Zoology. Insects. P
Insect and Mite Pests. Pests of Commercial Oil-Bearing, Medicinal and Essential Oil-Bearing Crops.
Abs Jour : Ref Zhur-Biol., No 20, 1958, 92190

ning green leaves during the winter, these leaves become the chief locations for pest hibernation. During this period, the M have their summer (green) appearance and in mild winters they are lively and feed actively. These M multiply in masses at the end of April and are blown by the wind to other plants including hops. Because of this peculiarity, the infestation of hops is attributed to windborne M and for this reason the square shape of the hop field is preferable to the elongated shape, since the peri-

Card : 3/4

STARY, D.

Effect of flickering light of various intensities on the critical fusion frequency. Arh higijena 11 no.1:1-7 '60.

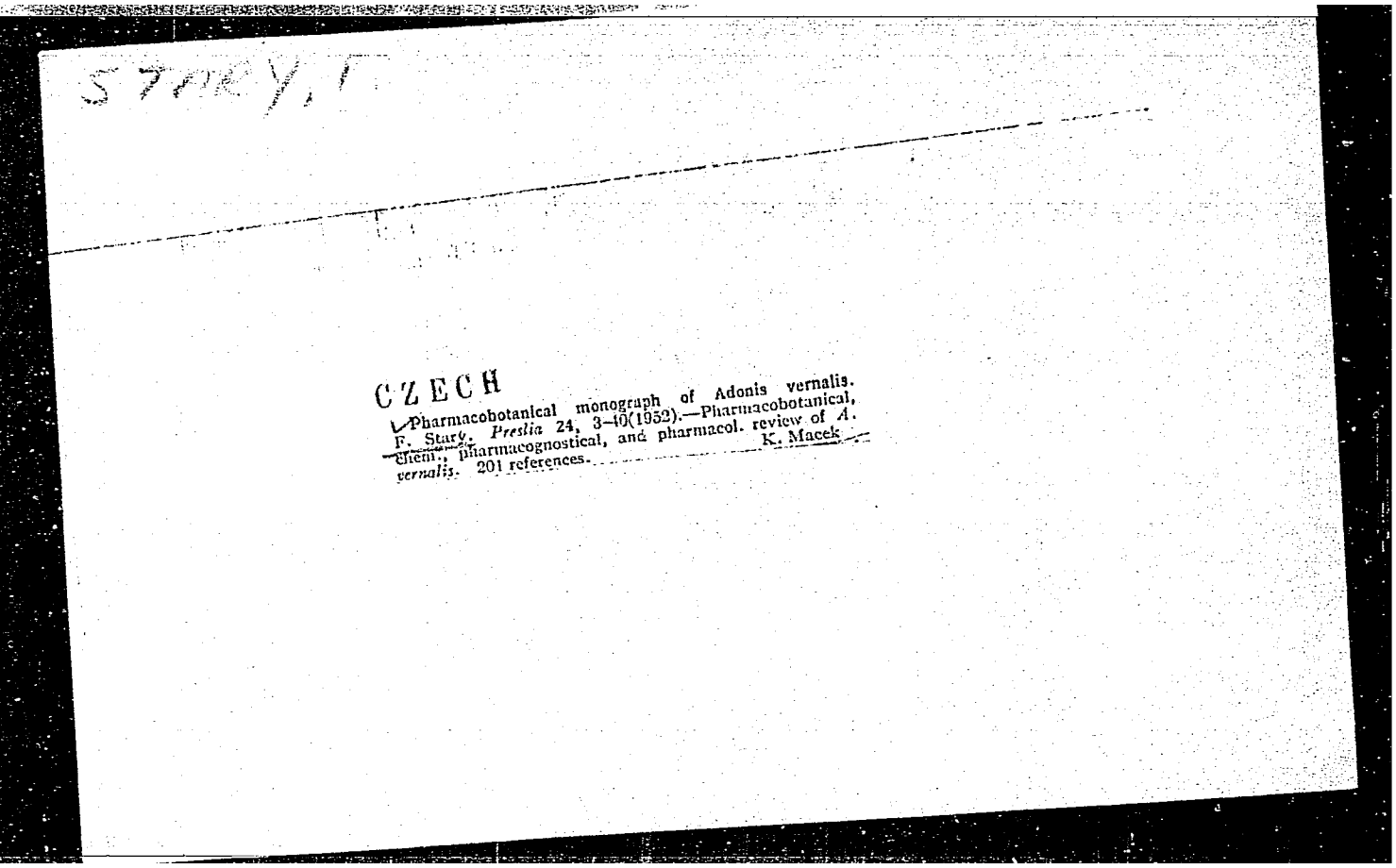
1. Centar za profesionalnu orijentaciju omladine, Zagreb.

(FLICKER FUSION)

BLAZEK,Z.; STARY,F.

Variability in the content of the main active principles of chamomile (Matricaria chamomilla L.). Cesk. farm. 13 no.2: 64-68 F'64.

1. Vyzkumny ustav prirodnich leciv, Praha.



CZECH

Pharmacobotanical monograph of Adonis vernalis. F. Starý. *Preslia* 24, 3–40(1952).—Pharmacobotanical, chem., pharmacognostical, and pharmacol. review of *A. vernalis*. 201 references. K. Macek

S/194/62/000/006/062/232
D295/D308

AUTHORS: Lev, Stěpan, Starý, František, Vokoun, Karel, Hadraba, Jiři, and Hradecký, Jiři

TITLE: Memory unit for the programmed switching of electric circuits

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, abstract 6-2-162 n (Czech. Patent, cl. 21c, 46/54, no. 97376, 15.11.1960)

TEXT: An electromechanical memory unit for the programmed switching of electric circuits is patented. An electromagnetic selector accomplishes successive switching of finger contacts according to a program set up in the circular panel. The construction of the program mechanism provides for the use of several selectors (one for each concentric series of switches) which secures a comparatively high operation speed. [Abstracter's note: Complete translation.]

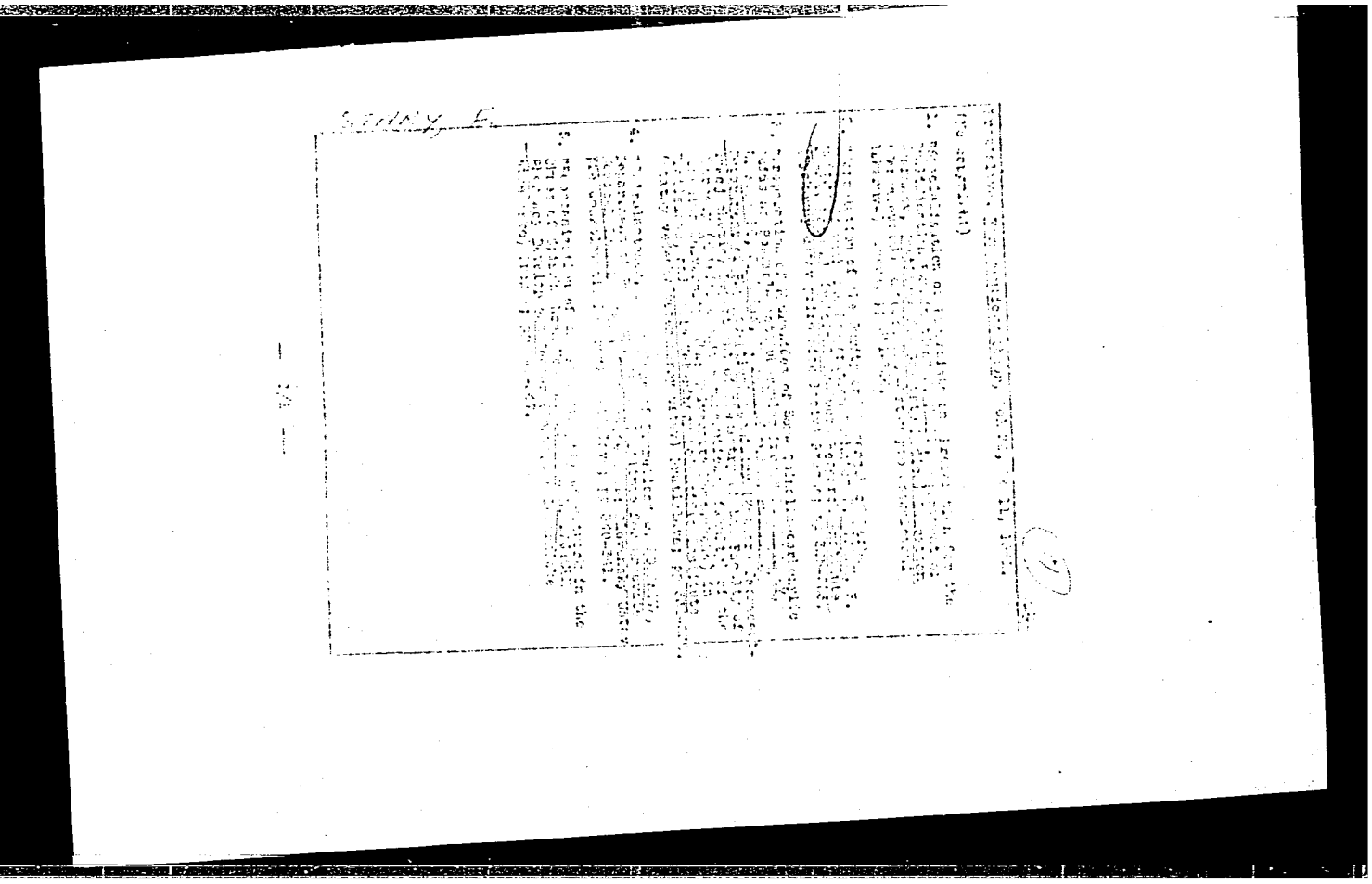
Card 1/1

BREJCHA, V.; BLAZEK, Z.; STARY, F.

Contribution to the study on the effect of various light intensities on common chamomile flowers. Cesk. farm. 11 no.1:19-23 '61.

1. Vyzkumny ustav prirodnich leciv, Praha.

(PLANTS MEDICINAL)



BLAZEK, Z.; STARY, F.

Contribution to the study on admixtures to Chamomilla vulgaris flowers. Cesk. farm. 11 no.5:244-251 Je '62.

1. Vyzkumny ustav prirodnich leciv, Praha.

(PLANTS MEDICINAL chem)

CZECHOSLOVAKIA

STARY,F. Research Institute of Natural Drugs,Prague.
(Vyzkumny ustav prirodnich leciv,Praha.)

"The Research of the Biology of Ergot at the Institute of Natural Drugs.

Prague,Ceskoslovenske Farmacie,Vol 11,No 10, Dec 62, pp 524-527.

Abstract: The study covered the taxonomy,morphology,anatomy, cytology,physiology,cultivation and genetics.Cultivation and harvesting problems are discussed.
37 references,33 Czech,4 German.

1/1

BLAZEK, Z.; STARY, F.

Pharmacognosy of Vinca minor leaves. I. Identification of the drug. Cesk. farm. 13 no.4 153-165 My '64

[redacted] comparative study of the leaves of some other species of Vinca and Catharanthus. Ibid. 165-172

1. Vyzkumny ustav prirodnich leciv, Praha.

BLAZEK,Z.; STARY, F.

Pharmacognosy of Folium vincae minoris. III. Total alkaloid content and normalization of the purity and quality of the drug. Cesk. farm. 13 no.6:315 -321 Jl '64

1. Vyzkumny ustav prirodnich leciv, Praha.

GLUCKNEROVA, E.; BLAZEK, A.; STARY, F.

The crumbling of camomile inflorescences (flos Chamomillae vulgaris) I. The crumbling process. Cesk. farm. 14 no.3: 112-120 Mr '65.

Characteristics of Czechoslovak approved varieties of comomile (Matricaria chamomilla L.). Ibid.:105-112

1. Vyzkumny ustav prirodnich leciv, Praha.

STARY, F., dr. PhMr. CSc., (Praha-Hloubetin, U Elektry 8); KUCERA, M.

Content and interrelation of lanatosides in Digitalis lanata Ehrh. ssp. lanata during the development. Cesk. farm. 14 no.8: 394-397 O '65.

1. Vyzkumny ustav prirodnich leciv, Praha. Submitted May 24, 1965.